Claims

What is claimed is:

(1) *(amended)* a machine for measuring angles about a plurality of axes, comprising:

one or more multi-axis **gravity sensing tilt sensor(s) or inertial accelerometer(s)** or multiple **gravity sensing tilt sensor(s) or inertial accelerometer(s)**, situated about different axis;

a computing device that receives inputs from the said **gravity sensing tilt sensor(s) or inertial accelerometer(s)**, translates them into expressions of angular measurement and outputs the results for display, computation, or extraction; **and a means of mounting components, comprising a case**.

(2) *(amended)* a machine for measuring angles about a plurality of axes, comprising:

one or more multi-axis **gravity sensing tilt sensor(s) or inertial accelerometer(s)**, or multiple **gravity sensing tilt sensor(s) or inertial accelerometer(s)**, situated about different axis; and

a computing device that receives inputs from the said **gravity sensing tilt sensor(s) or inertial accelerometer(s)**, translates them into expressions of angular measurement, calculates compounded angles of the various angles it measures and outputs the results for display, computation, or extraction;

(3) *(amended)* a machine as in claims (1) or **(2)** wherein a means of information extraction is incorporated, **comprising a communications port or electromagnetic transmitter**.

(4) *(amended)*a machine as in claim (1) or (2) that displays the results of the measurements and/or calculations in graphic form.

(5) *(amended)* a machine as in claim **(4)** wherein multiple displays may be exhibited simultaneously.

(6) *(amended)* a machine as in claim **(4)** wherein multiple displays may be exhibited sequentially.

(7) *(amended)* a machine as in claim **(4)** wherein multiple displays modes are controllable, being user selectable to exhibit simultaneously or sequentially.

(8) *(amended)* a machine as in claim **(4)** wherein one or more graphic displays resemble the form of a bull's-eye bubble level with scales.

(9) *(amended)* a machine as in claim **(4)** wherein one or more graphic displays resemble the form of a curved-tube bubble level with scales.

(10) *(amended)* a machine as in claim **(4)** wherein the displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made.

(11) *(amended)* a machine as in claim **(4)** that, having calculated a compound angle, can display a line representing the edge of the plane in which that angle lies.

(12) *(amended)* a machine as in claim (1) or **(2)** that displays the results of the measurements and/or calculations in numeric form.

(13) *(amended)* a machine as in claim **(12)** wherein multiple displays may be exhibited simultaneously.

(14) *(amended)* a machine as in claim **(12)** wherein multiple displays may be exhibited sequentially.

(15) *(amended)* a machine as in claim **(12)** wherein multiple displays modes are controllable, being user selectable to exhibit simultaneously or sequentially.

(16) *(amended)* a machine as in claim **(12)** wherein the displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made.

(17) *(amended)* a machine as in claim **(12)** that, having calculated a compound angle, can display a line representing the edge of the plane in which that angle lies.

(18) *(amended)* a machine as in claim (1) or **(2)** wherein the display format is user controllable, allowing selection of either graphic or numeric format.

(19) *(amended)* a machine as in claim **(18)** wherein multiple displays may be exhibited simultaneously.

(20) *(amended)* a machine as in claim **(18)** wherein multiple displays may be exhibited sequentially.

(21) *(amended)* A machine as in claim **(18)** wherein multiple displays modes are controllable, being user selectable to exhibit simultaneously or sequentially.

(22) *(amended)* a machine as in claim **(18)** wherein one or more graphic displays resemble the form of a bull's-eye bubble level.

(23) *(amended)* a machine as in claim **(18)** wherein one or more graphic displays resemble the form of a curved-tube bubble level.

(24) *(amended)* a machine as in claim **(18)** wherein the displays appear on different faces of the machine's case according to the axis about which the measurements or calculations producing them are made.

(25) *(amended)* a machine as in claim **(18)** that, having calculated a compound angle, can display a line representing the edge of the plane in which that angle lies.

(26) *(amended)* a machine as in claims (1) or **(2)** wherein angles may be measured and/or calculated in multiple modes comprising various levels of precision and of speed of measurement and/or calculation.

(27) *(amended)* a machine as in claim **(26)** wherein the modes of measurement and/or calculation may be selected automatically by the machine itself.

(28) *(amended)* A machine as in claim **(26)** wherein the modes of measurement and/or calculation may be manually selected by the user.

(29) *(amended)* a machine as in claims (1) or **(2)** wherein one or more means of orienting the device with respect to distant or remote reference points is incorporated, these means being preferably by use of a laser light or other electromagnetic energy beam projected from the device, but also including optical sight or reticule, audio beam, mechanical arm or extension, or any other manner of remote reference.

(30) *(amended)* a machine as in claims (1) or **(2)** wherein the measurements and results of calculations may be recorded and later displayed or output for reference.

(31) *(amended)* a machine as in claims (1) or **(2)** wherein the computing component can automatically select a display mode in accordance with the orientation of the device as detected by the **gravity sensing tilt sensor(s) or inertial accelerometers**.

(32) *(amended)* a machine as in claim (1) or **(2)** wherein the ambient temperature is measured and displayed for calibration purposes.

(33) *(amended)* a machine as in claim (1) or **(2)** wherein a discrete signal, audio, visual, or electrical, is emitted when the unit attains one or more pre-determined angular position(s).

(34) *(amended)* a machine as in claim (1) or **(2)** wherein an alarm signal is emitted that varies in accordance with the machine's proximity to pre-determined angles;

(35) *(amended)* a machine as in claim (1) or **(2)** also comprising a means of recording, or of storing in a memory, a baseline or zero point for each axis from whence angles may be measured;

(36) *(amended)* a machine as in claim (1) or **(2)** wherein the functions of angular measurement may be set to reset to zero at pre-determined or user selected angles, presenting, at each applicable angle, a **simulated bubble level display exhibiting an inclination reading of zero**.